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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/924,260	08/08/2001	Evelyn Duesterwald	10011525-1	4900

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EXAMINER	
FOWLKES, ANDRE R	

ART UNIT	PAPER NUMBER
2122	

DATE MAILED: 08/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/924,260	DUESTERWALD ET AL.	
	Examiner	Art Unit	
	Andre R. Fowlkes	2122	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 January 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☒ Claim(s) *7 and 9* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 August 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *8/8/01*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-22 are pending.

Claim Objections

2. Claims 7 and 9 are objected to because of the following informalities:

- "a cross a network" should be –across a network--, on line 3 of claim 7

- "The a pparatus" should be –The apparatus--, on line 1 of claim 9

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 1-11, 16, 17 and 20-22 are rejected under 35 U.S.C. 102(e) as being anticipated by Bugnion, U.S. Patent No. 6,704,925.

As per claim 1, Bugnion discloses an **apparatus for dynamically transforming and caching at least one computer program,** (col. 1:61-65, "Dynamic binary translators perform the translation from an original instruction sequence to a host instruction sequence during the execution of the program. The translated code sequences are then stored in a buffer called the translation cache"), **the apparatus comprising:**

- one or more computer readable storage media (col. 4:27-28, "The output instruction sequences are stored in a translation cache (computer readable storage media)"),

- computer executable instructions stored in the one or more computer readable storage media, (col. 4:27-28, "The output instruction sequences are stored in a translation cache"), **the computer executable instructions comprising:**

- instructions for dynamically transforming code fragments (col. 1:61-65, "Dynamic binary translators perform the translation from an original instruction sequence to a host instruction sequence during the execution of the program. The translated code sequences are then stored in a buffer called the translation cache"),

- instructions for caching said code fragments (col. 4:27-28, "The output instruction sequences are stored in a translation cache"),

- **instructions for causing said code fragments to be executed by at least one computer processor** (col. 5:29-30, "the system then executes the output instruction"),

- **instructions providing an application programming interface enabling said at least one computer program to activate said instructions for dynamically transforming said code fragments and said instructions for caching said code fragments** (col. 6:3, Bugnion discloses the applications necessary to communicate with the "operating system" or some other system or control program programs (i.e. application programming interfaces)).

As per claim 2, the rejection of claim 1 is incorporated and further, Bugnion discloses that **said instructions providing an application programming interface enable said at least one computer program to provide said code fragments for said instructions for dynamically transforming code fragments and for said instructions for caching said code fragments** (col. 6:3, Bugnion discloses applications to communicate with the "operating system" or some other system or control program programs (i.e. application programming interfaces), and col. 1:61-65, "Dynamic binary translators perform the translation from an original instruction sequence to a host instruction sequence during the execution of the program. The translated code sequences are then stored in a buffer called the translation cache").

As per claim 3, the rejection of claim 1 is incorporated and further, Bugnion discloses that **said instructions providing an application programming interface include providing functions for caching and executing a specified code fragment** (col. 6:3, Bugnion discloses applications to communicate with the "operating system" or some other system or control program programs (i.e. application programming interfaces), and col. 1:61-65, "Dynamic binary translators perform the translation from an original instruction sequence to a host instruction sequence during the execution of the program. The translated code sequences are then stored in a buffer called the translation cache").

As per claim 4, the rejection of claim 1 is incorporated and further, Bugnion discloses that **said instructions providing an application programming interface include providing functions for configuring behavior of said instructions for dynamically transforming said code fragments and said instructions for caching said code fragments** (col. 6:3, Bugnion discloses an application to communicate with the "operating system" or some other system or control program programs (i.e. application programming interfaces), and functions for configuring the translation system)

As per claim 5, the rejection of claim 1 is incorporated and further, Bugnion discloses that **said instructions for dynamically transforming said code fragments comprise instructions for changing memory address references in said code**

fragments (col. 3:38-40, "translate each data reference from a virtual address issued by the simulated processor to a physical address").

As per claim 6, the rejection of claim 1 is incorporated and further, Bugnion discloses that **said instructions for dynamically transforming said code fragments comprise instructions for changing the layout of said code fragments while preserving the function of said code fragments** (col. 8:1, "compiler optimizations (e.g. code motion, which changes the layout of code, while preserving the original function").

As per claim 7, the rejection of claim 1 is incorporated and further, Bugnion discloses that **said instructions providing an application programming interface include instructions for accessing code fragments a cross a network** (col. 6:3, "computer system (i.e. networked computers", and col. 6:3, Bugnion discloses an application to communicate with the "operating system" or some other system or control program programs (i.e. application programming interfaces)).

As per claim 8, the rejection of claim 1 is incorporated and further, Bugnion discloses that **at least one computer program comprises at least one emulator** (col. 4:25-26, "(a computer programs that) emulate the corresponding input instruction sequences").

As per claim 9, the rejection of claim 1 is incorporated and further, Bugnion discloses that **at least one computer program comprises a plurality of emulators** (col. 4:25-26, "(a computer programs that) emulate the corresponding input instruction sequences").

As per claim 10, the rejection of claim 9 is incorporated and further, Bugnion discloses that **said plurality of emulators comprise emulators for at least two different computer architectures** (col. 4:25-26, "(a computer programs that) emulate the corresponding input instruction sequences", and the phrase "Depending on the system architecture", at col. 10:14 , indicates several different computer architectures).

As per claim 11, the rejection of claim 1 is incorporated and further, Bugnion discloses that **at least one computer program comprises at least one operating system** (col. 6:3, "operating system").

As per claim 16, the rejection of claim 1 is incorporated and further, Bugnion discloses that **said computer executable instructions further comprising instructions for optimizing said code fragments** (col. 8:1, "(code) optimizations").

As per claim 17, the rejection of claim 1 is incorporated and further, Bugnion discloses that **said computer executable instructions further comprising**

instructions for linking a plurality of said code fragments to create a larger code fragment (col. 8:1, "(code) optimizations (e.g. replacing a function call, with the actual code for the function, creating a larger, more efficient code fragment").

As per claims 20-22, Bugnion also discloses such claimed limitations as addressed in claim 10 above.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 12-15, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bugnion, U.S. Patent No. 6,704,925 in view of Yates et al., (Yates), U.S. Patent No. 5,802,373.

As per claim 12, the rejection of claim 1 is incorporated and further, Bugnion doesn't explicitly disclose that said computer executable instructions further comprising instructions for **transparently obtaining said code fragments from said at least one**

computer program for said instructions for dynamically transforming said code fragments and for said instructions for caching said code fragments.

However, Yates, in an analogous environment, discloses that said computer executable instructions further comprising instructions for **transparently obtaining said code fragments from said at least one computer program** for said instructions for dynamically transforming said code fragments and for said instructions for caching said code fragments (col. 15:11-12, "to transparently emulate the execution of a ... non-native instruction").

Therefore, it would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to incorporate the teachings of Yates into the system of Bugnion to have a instructions for **transparently obtaining said code fragments from said at least one computer program.** The modification would have been obvious because one of ordinary skill in the art would be motivated to allow existing software to be translated and executed on new hardware while excluding the details from the software user in order to minimize distractions and unnecessary details for a new or novice computer user.

As per claim 13, the rejection of claim 12 is incorporated and further, Bugnion discloses that **said computer executable instructions further comprising instructions for controlling the execution of said at least one computer program on said at least one computer processor** (col. 1:61-65, "Dynamic binary translators perform the translation from an original instruction sequence (i.e. instructions for

controlling the execution of a program on a processor) to a host instruction sequence during the execution of the program").

As per claim 14, the rejection of claim 12 is incorporated and further, Bugnion discloses that **said computer executable instructions further comprising instructions for obtaining optimal portions of code from said at least one computer program to create said code fragments** (col. 1:61-65, "Dynamic binary translators perform the translation from an original instruction sequence (i.e. instructions for controlling the execution of a program on a processor) to a host instruction sequence during the execution of the program", and col. 8:1, "(code) optimizations").

As per claim 15, the rejection of claim 1 is incorporated and further, Bugnion discloses that **said instructions for transparently obtaining said code fragments from said at least one computer program obtain said code fragments across a network** (col. 6:3, "computer system (i.e. networked computers", and col. 6:3, Bugnion discloses an application to communicate with the "operating system" or some other system or control program programs (i.e. application programming interfaces)).

As per claim 18, the rejection of claim 1 is incorporated and further, Bugnion doesn't explicitly disclose that **said computer executable instructions further comprising instructions for replacing hardware control code in said code**

fragments, where said hardware control code is adapted to control hardware which not present and hardware which is not functioning

However, Yates, in an analogous environment, discloses that **said computer executable instructions further comprising instructions for replacing hardware control code in said code fragments, where said hardware control code is adapted to control hardware which not present and hardware which is not functioning** (col. 1:15-18, "(the system) includes all of the software resources needed by the computer system to interface each of the hardware elements to the computer system", and these instructions are then translated (i.e. replaced)).

Therefore, it would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to incorporate the teachings of Yates into the system of Bugnion to have **said computer executable instructions further comprising instructions for replacing hardware control code in said code fragments, where said hardware control code is adapted to control hardware which not present and hardware which is not functioning.** The modification would have been obvious because one of ordinary skill in the art would be motivated to allow the software to exhibit all of the new hardware functionality when it is translated to a different architecture system.

As per claim 19, the Bugnion/Yates combination also discloses such claimed limitations as addressed in claims 12, 16 and 18, above.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andre R. Fowlkes whose telephone number is (703)305-8889. The examiner can normally be reached on Monday - Friday, 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q. Dam can be reached on (703)305-4552. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ARF

Hoang-Anh Nguyen-Ba

ANTONY NGUYEN-BA
PRIMARY EXAMINER